

Chapter 7 System of Equations**Section 7.4: Using Substitution As a Strategy to Solve Linear System****PREREQUISITES:** Solve for “x”.

a) $x + 6y = -2$

b) $3x + 2y = 8$

PREREQUISITES: Solve for “y”.

a) $-4x + y = 11$

b) $3x - 2y = 8$

In the previous sections, a linear system was solved by graphing out both equations and then finding the intersection point. This is often time consuming and also sometimes you can only find an approximate solution. We can use algebraic techniques to determine an exact solution. One method is called solving by **SUBSTITUTION**. In this section, variables will **eliminated by solving** one equation for ONE variable (sometimes called **ISOLATING** the variable), then **SUBSTITUTING** the result into the other equation.

Example 1: Solve the following system by substitution.

$4x - y = 8$

$x + 2y = -7$

To solve, you must decide on which variable to ISOLATE first! Let's do it two ways.

Solution #1: Choose to isolate “x”.*Solution #2:* Choose to isolate “y”.*Substitute the above expression into the other eqn.**Substitute the above expression into the other eqn.*

It really doesn't matter which variable you isolate, the answers should be the same.